Space Weather Forecast

Issued on Tuesday 10 December 2024 at 12:58 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Low to Moderate Solar Activity

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with three Moderate-class flares observed, with the peak flare from a new region on the southeast limb. While the most active of the ten regions currently on the disc, this remains a small and apparently simple region, although this is still difficult to assess due to its location. Also of interest is the region now approaching the southwest limb, as this produced a strong flare but still brings the potential for some flare activity. The sunspot group in the centre disc is the largest region, but remains relatively inactive, while a further region in the northeast has shown some increasing size and complexity, but also remains relatively inactive. The other regions are currently small and simple.

No Earth directed coronal mass ejections (CMEs) were observed.

Solar Wind / Geomagnetic Activity: The faster solar winds from a coronal hole very gradually faded through the period. Solar wind speeds eased from elevated levels of around 500 km/s to be slightly elevated at just over 400km/s. Interplanetary Magnetic Field was initially Moderate, but eased from 09/1500UTC, falling to generally Weak. The north-south component was mainly Weak and predominately southward. Geomagnetic activity was Quiet to Unsettled (Kp2-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (High Energy protons) persisted at background, with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate to Low with a chance of Moderate class flares, and a slight chance of isolated X-class flares.

Solar Wind / Geomagnetic Activity: There are no Earth directed CMEs. Influence of the coronal hole sourced fast winds will continue to recede with solar winds likely easing to be background, but with brief periods at slightly elevated remaining possible. Geomagnetic activity is forecast to be Quiet with isolated Unsettled intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High Energy protons) is expected to persist at background, with only a very slight chance of solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	60	60	60	60
Very Active	R3-R5 (X Class)	No	10	10	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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